

WHAT WE CLAIM IS:

1. A holographic viewing device comprising a frame and a computer-generated hologram constructed as a transmission Fourier transform hologram and fitted in said frame, wherein said computer-generated hologram comprises minuscule cells having pitches δ_x and δ_y , with a reconstruction image area defined by a range of spreading of \pm first-order diffracted light of given wavelength from a diffraction grating having grating pitches $2\delta_x$ and $2\delta_y$ that are twice as large as said pitches of cells, and an input image pattern, reconstructed at said wavelength in a range of up to $2/3$ of said reconstruction image area, is recorded in said computer-generated hologram.

2. The holographic viewing device according to claim 1, wherein said input image pattern, reconstructed in a range of up to $1/2$ of said reconstruction image area for said computer-generated hologram, is recorded in said computer-generated hologram.

3. The holographic viewing device according to claim 1 or 2, wherein said computer-generated hologram comprises a phase hologram.

4. The holographic viewing device according to claim 3, where said computer-generated hologram has a phase distribution multivalued to four or more levels.

5. A computer-generated hologram constructed as a transmission Fourier transform hologram for a viewing device, wherein said computer-generated hologram comprises

minuscule cells having pitches δ_x and δ_y , with a reconstruction image area defined by a range of spreading of \pm first-order diffracted light of given wavelength from a diffraction grating having grating pitches $2\delta_x$ and $2\delta_y$ that are twice as large as said pitches of cells, and an input image pattern, reconstructed at said wavelength in a range of up to 2/3 of said reconstruction image area, is recorded in said computer-generated hologram.

6. The computer-generated hologram according to claim 5, wherein said input image pattern, reconstructed in a range of up to 1/2 of said reconstruction image area for said computer-generated hologram, is recorded in said computer-generated hologram.

7. The computer-generated hologram according to claim 5 or 6, which comprises a phase hologram.

8. The computer-generated hologram according to claim 7, which has a phase distribution multivalued to four or more levels.